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(56) Documents Cited

GB 2024627 A

US 5073993 A

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(54) Abstract Title

Container for accommodating toilet flush water treatment composition

(57) A container for accommodating a composition for treating the water in a toilet bowl of a water closet comprises a chamber (1) and a hook-like portion (2) for suspending the container from the rim of the toilet bowl. The chamber and the hook-like portion are connected by means of an arm (3) of adjustable length so that the chamber can be located in the path of the flushing water irrespective of the size of the rim. Preferably said arm comprises first and second portions (4 and 5) which are axially displaceable with respect to each other, one of said portions including a protruding part (6,7) in frictional engagement with the other of said portions.

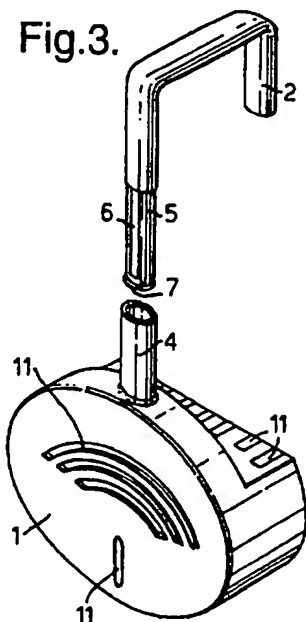


Fig.1.

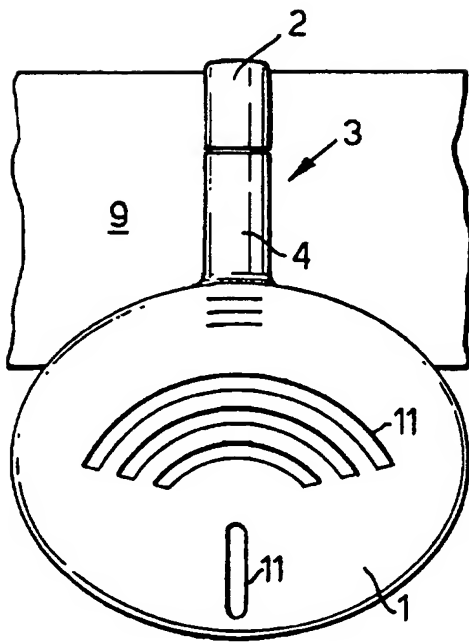


Fig.2.

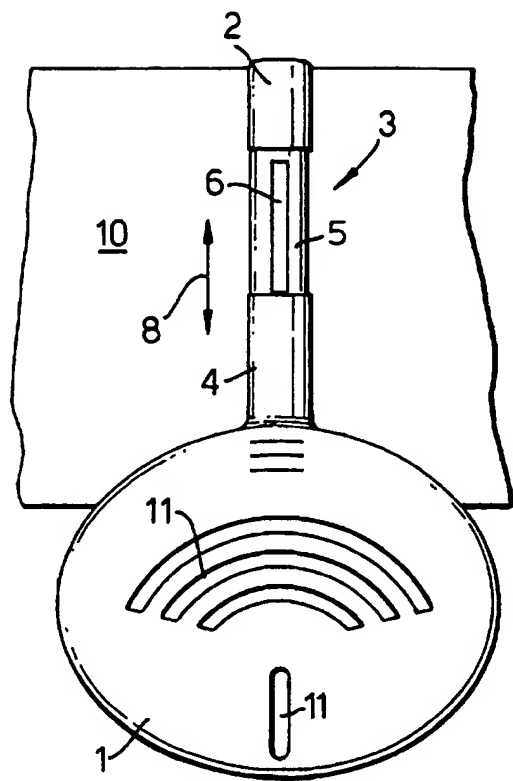


Fig.3.

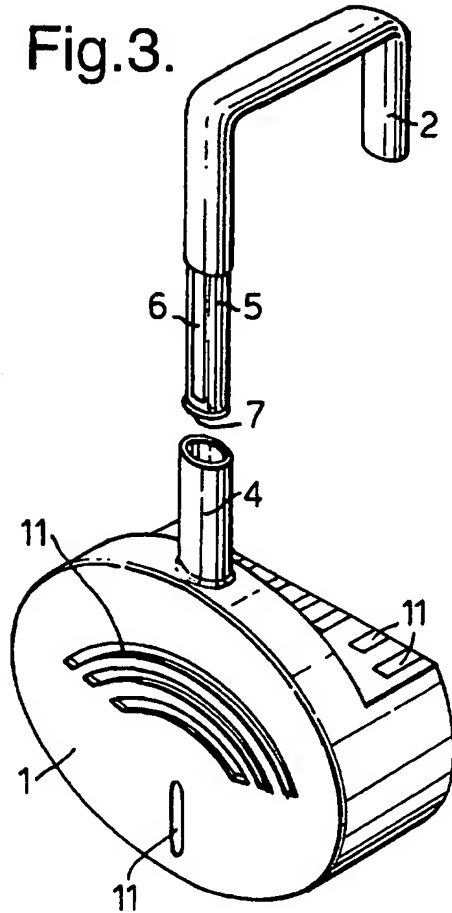


Fig.4.

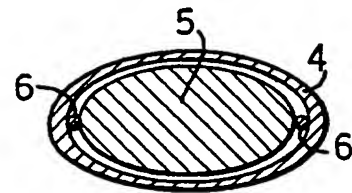


Fig.5.

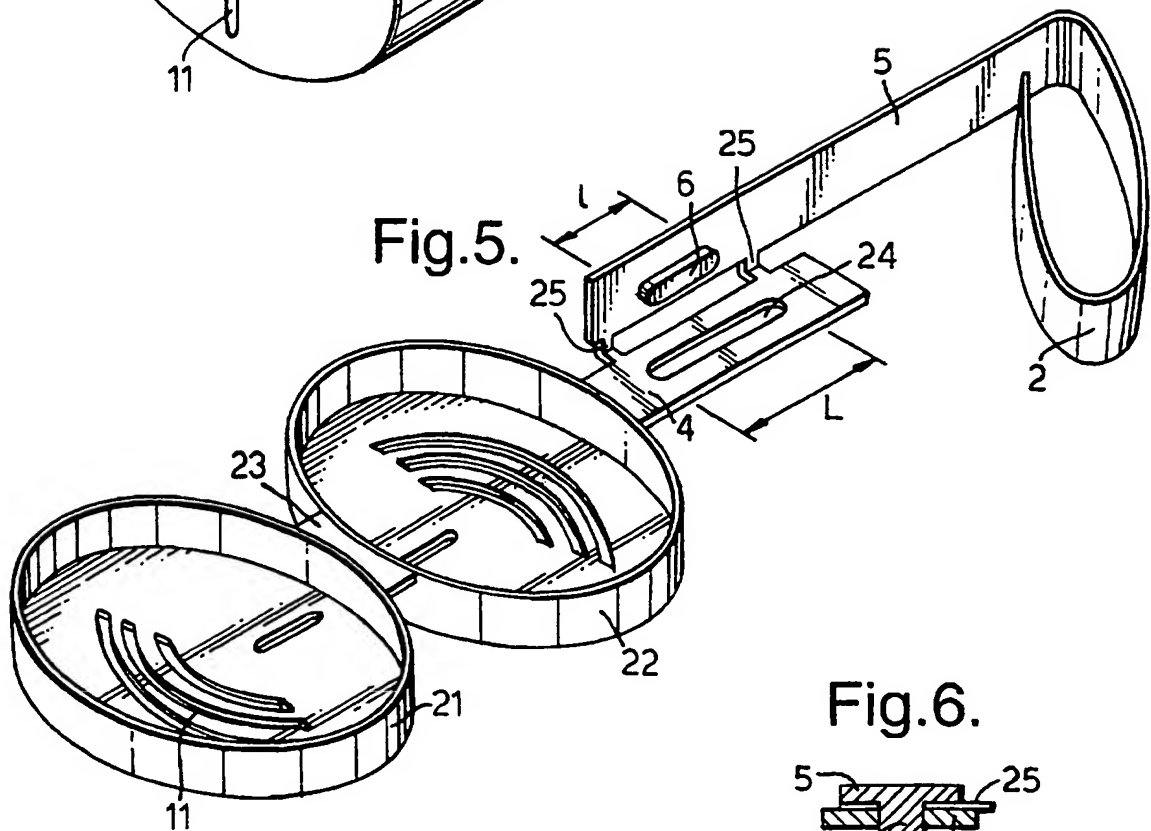


Fig.6.



IMPROVEMENTS IN OR RELATING TO CONTAINERS

5 This invention relates to containers and more particularly is concerned with containers for accommodating compositions for disinfecting or otherwise treating the water in the toilet bowl of a water closet.

10 It is known to provide compositions containing constituents such as an antimicrobial agent, perfume, bleaching agent, colourant and/or foaming agent for use in treating the water in toilet bowls. Ordinarily, the compositions are in the form of coherent self-supporting blocks in cage-like containers suspended
15 near the rim of the bowl in a position where, on each occasion the bowl is flushed, the flushing water enters the container and contacts the block to entrain some of the composition before flowing into the lower part of the bowl. Thus the water remaining in the bowl, after
20 flushing, includes some of the composition which disinfects or otherwise treats the water and the adjacent surfaces of the bowl.

Generally the container includes an arm - terminating in a hook-like portion adapted to be fitted
25 over the rim of the toilet bowl. It is important that the container is located in a position where it will receive flushing water and this is not always easy to achieve since not all toilet bowls have the same size of rim.

30 It is an object of the present invention to provide a container of the type specified which is capable of fitting to a wide variety of toilet bowls having different rim sizes.

35 According to the present invention there is provided a container for accommodating a composition for treating the water in the toilet bowl of a water

closet, which container comprises:-

a chamber for accommodating the composition,
a hook-like portion for fitting over the rim of
the toilet bowl, and

5 an arm connecting the chamber and the hook-like
portion, said arm comprising first and second portions
which are axially displaceable with respect to each
other so that the arm is of adjustable length and one
of said first and second portions including a
10 protruding part in frictional engagement with the other
of said first and second portions.

By using an adjustable arm in accordance with the
invention, it can be ensured that, when the hook-like
portion is fitted over the rim, the chamber is located
15 in the path of the flushing water. Said protruding
part is arranged so as to prevent relative axial
displacement of the first and second portions until
said first and second portions are subjected to a
displacing force caused by hand pressure, which is
20 greater than a predetermined force. The length of the
arm can be adjusted by applying a force greater than
the predetermined force. In order to prevent
inadvertent change of length of the arm during use, the
arm is designed so that the predetermined force is
25 greater than that component of the gravitational force
which tends to cause the first and second portions to
move apart when the container is mounted on the rim.
Moreover, the predetermined force is selected so as to
be greater than that component of the force exerted by
30 the water during flushing which acts in a direction
such as to cause relative displacement of the first and
second portions.

In an embodiment, the first portion is tubular so
that, when the first and second portions are relatively
35 axially displaced more or less of the second portion is
shrouded by the tubular first portion.

The tubular portion may be of any desired cross section such as elliptical, circular or rectangular.

5 In a particularly preferred embodiment, the protruding part is in the form of at least one, and preferably two, axially extending ribs providing minimum contact with the other portion.

10 Preferably, a means is provided to prevent the first and second portions being relatively displaced to such an extent that the portions become detached from one another. This may be in the form of a retaining circumferential rib provided at the end of the second portion.

15 The configuration of the outer surface of the second portion should correspond to the configuration of the inner surface of the tubular first portion and preferably the outer surface of the tubular first portion is of a similar configuration to the outer surface of the second portion so that the external surfaces of the arm are generally smooth and continuous and hence are less likely to become contaminated during use.

20 In accordance with a particularly preferred embodiment, the invention provides a cage-like container for accommodating a composition for treating the water in the toilet bowl of a water closet, which container comprises a chamber for accommodating a block of said composition, a hook-like portion for fitting over the rim of the toilet bowl, and an arm connecting the chamber and the hook-like portion, wherein said arm comprises a tubular first portion and a second portion telescopically mounted within the tubular first portion so that the first and second portions are relatively axially displaceable whereby more or less of the second portion is shrouded by the tubular first portion and wherein relative axial displacement of said first and 35 second portions is resisted by frictional forces

exerted between the inner surface of the tubular first portion and an axial rib protruding from the outer surface of the second portion.

5 In another embodiment, the protruding part of said one of said first and second portions is located in, and is in frictional engagement with, a suitable aperture provided in the other of the first and second portions. By ensuring that the aperture has an axial length greater than that of the protruding part, the
10 protruding part can be axially displaced along the aperture to adjust the length of the arm.

In the case of this embodiment, the container may be formed as an integral one-piece moulding with the first and second portions connected together by a hinge
15 which can be cut to enable the protruding part to be displaced along the aperture.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the
20 accompanying drawings, in which:-

Figure 1 is a side view of a first embodiment of a container in accordance with the invention secured to the rim of a first toilet bowl,

25 Figure 2 is a side view of the container of Figure 1 when adapted to fit the different sized rim of a second toilet bowl,

Figure 3 is a perspective view of the container of Figures 1 and 2 with the arm portions separated,

30 Figure 4 is a cross section through the arm of a second embodiment of a container in accordance with the invention,

Figure 5 is a perspective view of a precursor for a third embodiment of a container in accordance with the invention, and

35 Figure 6 is a section through the arm of the container formed from the precursor of Figure 5.

In the drawings, corresponding parts are denoted by like reference numerals.

Referring to Figures 1 to 3, the container is a cage-like container which comprises a chamber 1 for
5 accommodating a block (not shown) of a composition for treating the water in the toilet bowl of a water closet. The container also includes a hook-like
portion 2 linked by an arm 3 of adjustable length to the chamber 1. The arm comprises a tubular first
10 portion 4 attached to the chamber 1 and a cylindrical second portion 5 having one end attached to the hook-like portion 2. The first portion 4 is of elliptical cross section and includes an internal bore of
elliptical cross section and the second portion 5 is of
15 elliptical cross section. Thus the external surface of the arm is substantially free of discontinuities in which contaminants may collect. The cross section of the second portion 5 corresponds to the inner cross
section of the tubular first portion 4 to enable the
20 second portion 5 to be located, and retained, in the tubular first portion 4. A protrusion in the form of an axially extending rib 6 is provided on the surface of the second portion 5 so that the rib is in
frictional engagement with the inner surface of the
25 tubular first portion 4. A circumferential rib 7 is provided at the free end of the second portion 5 to retain the second portion 5 within the first portion 4.

The first and second portions 4 and 5 are
relatively longitudinally displaceable in the manner of
30 a telescope between a first limit position where the arm is shortest (as shown in Fig. 1) and a second limit position where the arm is longest. Thus relative displacement of the portions 4 and 5 causes more or
less of the second portion 5 to be enveloped within the
35 tubular first portion 4. The first and second portions 4 and 5 can only be longitudinally displaced with

respect to each other once a force has been applied manually, in the direction indicated by the arrows 8, which is greater than a predetermined force required to overcome the frictional forces between the rib 6 and the first portion 4. In the absence of a force greater than the predetermined force, relative displacement of the first and second portions 4 and 5 is resisted by the frictional forces. The length of the arm can be manually altered by exceeding the predetermined force. The arm 3 may be shortened by axially displacing the first and second portions 4 and 5 such that more of the second portion 5 is shrouded within the tubular first portion 4 to enable the chamber 1 to lie in the path of the flushing water when the container is suspended from a relatively shallow rim 9 (Figure 1) by the hook-like portion 2. Alternatively, the arm 3 may be lengthened by axially displacing the first and second portions 4 and 5 so that less of the second portion is located within the tubular first portion 4 and the chamber 1 lies in the path of the flushing water when the container is suspended from a relatively deeper rim 10 by the hook-like portion 2 (see Figure 2).

In either case, the chamber 1 can be located in a position where, during flushing, flushing water can enter the chamber 1 via the uppermost of apertures 11 in the chamber walls to entrain composition from the block in the chamber 1 before leaving the chamber via the lowermost of apertures 11 and flowing down to the lower part of the toilet bowl.

Because of the adjustability of the arm length, the container can be securely and properly fitted under any rim of conventional size.

Referring now to Figure 4, parts corresponding to parts of Figures 1 to 3 are denoted by like reference numerals. In this case, the outer surface of the second portion 5 includes a pair of ribs 6, on opposite

surfaces, for engagement with the inner surface of the first portion 4.

Referring now to Figures 5 and 6, the precursor as shown is formed integrally by injection moulding. The precursor comprises chamber-forming parts 21 and 22 connected by hinge portion 23 so that the parts 21 and 22 may be brought together to define the chamber by relative pivotal movement about hinge portion 23. Connected to part 22 is the first portion 4 of the arm including an axially extending slot 24 of length L. The second portion 5 of the arm, oriented at right angles to first portion 4, is connected to first portion 4 by hinge portions 25. The second portion 5 includes an axially extending protrusion 6 of length l (where l is less than L) and of a width such that it forms an interference fit in the slot 24 when the second portion 5 and first portion 4 are subjected to relative pivotal movement about hinge portions 25 to cause the portions 4 and 5 to be superposed and the protrusion 6 to enter slot 24. Thereafter, the hinge portions 25 are severed to enable the protrusion 6 to slide along slot 24 thereby enabling the length of the arm to be adjusted.

CLAIMS:

1. A cage-like container for accommodating a composition for treating the water in the toilet bowl of a water closet, which container comprises:-

5 a chamber for accommodating a block of said composition,

a hook-like portion for fitting over the rim of the toilet bowl, and

10 an arm connecting the chamber and the hook-like portion, wherein said arm comprises a tubular first portion and a second portion telescopically mounted within the tubular first portion so that the first and second portions are relatively axially displaceable whereby more or less of the second portion is shrouded
15 by the tubular first portion and wherein relative axial displacement of said first and second portions is resisted by frictional forces exerted between the inner surface of the tubular first portion and an axial rib protruding from the outer surface of the second
20 portion.

2. A container for accommodating a composition for treating the water in the toilet bowl of a water closet, which container comprises:-

25 a chamber for accommodating the composition, a hook-like portion for fitting over the rim of the toilet bowl, and

an arm connecting the chamber and the hook-like portion, said arm comprising first and second portions which are axially displaceable with respect to each other so that the arm is of adjustable length and one
30 of said first and second portions including a protruding part in frictional engagement with the other of said first and second portions.

3. A container as claimed in claim 2, wherein
35 the first portion is tubular and the second portion is mounted within the tubular portion so that the first

and second portions are relatively axially displaceable whereby more or less of the second portion is shrouded by the tubular first portion.

5 4. A container as claimed in claim 3 wherein said protruding part is in the form of at least one rib provided on the outer surface of the second portion for frictional engagement with the inner surface of the tubular first portion.

10 5. A container as claimed in claim 4, wherein the or each rib is an axial rib.

6. A container as claimed in claim 3, 4 or 5, wherein the second portion includes means to retain the second portion within the tubular first portion.

15 7. A container as claimed in claim 6, wherein said means is in the form of a circumferential rib on the second portion.

20 8. A container as claimed in claim 2, wherein the protruding part of said one of said first and second portions is frictionally engaged in a slot in the other of said first and second portions.

25 9. A container as claimed in claim 8 in the form of an integral moulding comprising first and second chamber-forming parts connected by a hinge portion, wherein the first portion of the arm is connected to one of the chamber-forming parts and the second portion of the arm is connected to the first portion of the arm by severable hinge portions.

30 10. A container substantially as hereinbefore described with reference to and as illustrated in Figures 1, 2 and 3, Figure 4 or Figures 5 and 6 of the accompanying drawings.



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Claims searched: 1-10

Examiner: D. Haworth
Date of search: 27 January 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): E1C (C36B)

Int Cl (Ed.6): E03D 9/02

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2024627 A (Global-Werk)	
A	US 5073993 A (Dewaal)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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